INVESTIGATOR'S ANNUAL REPORT

National Park Service

All or some of the information provided may be available to the public

Reporting Year: 2003	**Park:** Shenandoah NP
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Permit#:
SHEN-2003-SCI-0011

Park-assigned Study Id. #:
SHEN-00038

Project Title:
Shenandoah Watershed Study (SWAS)

Permit Start Date: Jan 01, 2003	**Permit Expiration Date** Dec 31, 2003
Study Start Date: Jan 01, 2003	**Study End Date** Dec 31, 2003

Study Status:
Continuing

Activity Type:
Research

Subject/Discipline:
Watershed Management / Assessment

Objectives:
The Shenandoah Watershed Study (SWAS) has both scientific and practical resource-management objectives. The underlying scientific objective of the SWAS program has been to improve understanding of hydro-biogeochemical processes and factors that govern ecosystem conditions in SNP's mountain watersheds. This scientific objective complements a resource management objective that has been defined by the need to document and assess change that is occurring in SNP's ecosystems.

Findings and Status:
Trends in the acid-base composition of Shenandoah NP stream waters:

Trend analysis for SWAS study streams (n = 14) has been updated for water years 1988-2001. Results have been reported in the document, Assessment of Air Quality and Related Values in Shenandoah National Park. In summary, the patterns of annual trends in quarterly ANC and sulfate concentrations indicate that SNP streams are showing signs of recovery from acidification. Considered in relation to regional-scale analysis, these observations suggest that changes in SNP stream water composition may reflect regional recovery differences in the eastern United States. It is notable that regional-scale recovery has not been observed among streams in the larger western Virginia region, which includes streams to the south of SNP. It should also be noted, however, that the changes in surface water acid-base constituents in SNP and the larger western Virginia region are small compared to those observed in more northerly regions. In addition, changes in SNP and western Virginia stream water composition may be related to other factors, including changes in stream water discharge and the effects of forest disturbance. Seasonal differences in trends have also been noted.

For this study, were one or more specimens collected and removed from the park but not destroyed during analyses?
No

Funding provided this reporting year by NPS: 71500	**Funding provided this reporting year by other sources:** 0

Fill out the following ONLY IF the National Park Service supported this project in this reporting year by providing money to a university or college	
Full name of college or university:	**Annual funding provided by NPS to university or college this reporting year:**
University of Virginia	71500